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# Predicting college success for freshmen at the College of the Pacific from scores made on the SCAT test

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# PREDICTING COLLEGE SUCCESS FOR FRESHMEN AT THE COLLEGE OF THE PACIFIC FROM SCORES MADE ON THE SCAT TEST

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by

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# CHAPTER I

## INTRODUCTION

Since 1956 the College of the Pacific has required all freshmen to take the Cooperative School and College Ability Test (SCAT). The results of this test may be used by the counselors to aid them in advising the students as to major area or the number of units to carry per semester.

No previous study has been done with the SCAT scores to predict grade-point averages (GPA) for the College of the Pacific freshmen (1957-1958). An attempt will be made to develop a regression equation from the SCAT scores and the GPA of the 1956-1957 freshmen at the College of the Pacific. This equation will then be used to predict the GPA of the 1957-1958 students from their scores made on the SCAT and compared with their actual GPA.

Purpose of the problem. The purpose of this study is to predict the GPA of the students from their SCAT scores. The specific objectives of this study are as follows: (1) to show to what degree the GPA can be predicted from the SCAT scores and to what extent they will fall between the standard error of estimate of the regression equation and, (2) to predict the GPA of students in the area of their respective major.

Importance of the problem. Freshmen entering the College of the Pacific are required to take a number of tests. The results of these tests may be referred to by the counselors whenever a student needs guidance and counseling.

In this study the regression equation between the GPA and the SCAT scores, with regard to male and female scores, is to be developed. The equation will then be used to predict future GPA's of the freshmen at the College of the Pacific. The GPA can be predicted within the standard error of estimate of the regression equation two-thirds of the time. In a normal distribution two-thirds of the number of cases will lie not more than one standard deviation above and below the mean. The standard error of estimate of the regression equation will eliminate part of the error of estimating so the predicting of the GPA's will fall within the range two-thirds of the time.

The results of this study will be of value to the counselors in predicting future success of freshmen at the College of the Pacific if the coefficient of correlation is significant and the GPA's can be predicted from the SCAT scores and will fall within the standard error of estimate of the regression equation two-thirds of the time.

Hypothesis. A certain degree of relationship between SCAT scores and GPA's of students will be determined in this study. A regression equation will be used to predict two-thirds of the students' GPA from their SCAT scores, and the

predicted GPA will fall within the standard error of estimate of the regression equation. The GPA of the 1957-1958 freshmen at the College of the Pacific will be predicted from their SCAT scores.

Source of data. SCAT scores and students' GPA's used in this paper were obtained from the records in the undergraduate office at the College of the Pacific.

Data. The information used in this paper are the SCAT scores and the GPA of the 1956-1957 freshmen as well as the SCAT scores of the 1957-1958 freshmen at the College of the Pacific.

Definition of terms.

Cooperative School and College Ability Tests (SCAT): Two subtests or parts which measure the developed ability in skills that are closely related to student success in the verbal kinds of school learning (L score). Two other subtests which are measures of ability in certain quantitative skills of number manipulation and problem solving (Q score).

Regression Equation: The regression equation is the equation of a line which will represent the trend of a set of data. The regression line in this study is formed by the SCAT scores on the GPA.

## SUMMARY

Data used in this report were SCAT scores and GPA's of freshmen at the College of Pacific for 1956-1957. These data were used in developing a regression equation to be used in predicting the GPA of the 1957-1958 freshmen.

# CHAPTER II

## REVIEW OF THE LITERATURE

Much has been written with regard to predicting success in college from test scores and grade-point averages, but there has been little written concerning the prediction of college success from the scores compiled on the Cooperative School and College Ability Tests.

Grater and Thalman[1] found that a relatively high positive correlation existed between test performance on the American Council on Education Psychological Examination (ACE) and grade-point averages (GPA). The quantitative section or subtest correlated .68, the linguistic section correlated .46, and the total score correlated .58 with the criterion for the women. It appears that such ratings would be valuable in the guidance process, if they were wisely employed. The correlations are not sufficiently high to warrant their use as the only basis for prediction of individual scholastic success.

The correlations for the men were (1) quantitative,

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[1]Harry Grater and W. A. Thalman, "A Statistical Analysis of the Relationship Between American Council on Education Psychological Examination Ratings and Grade-Point Averages," Journal of Educational Research, 49:307-310, December, 1955.

.23, (2) linguistic, .28, and (3) total, .32. They were significant and positive, but are much too low to be valuable in making individual predictions. These examination ratings were useful in making only very gross estimates of future academic achievement, and certainly can be used as a guidance tool only with the greatest discretion.[2]

Correlations between ACE scores and GPA for the subjects taken to comprise a major were small. They indicated there is little or no value in predicting scholastic achievement in certain major areas. In no instances were the correlations high enough to warrant their utilization as a basis for making individual predictions of scholastic achievement.[3]

Stone[4] found the use of entrance test data and high school grade-point average (HSGPA) provided the counselor at Brigham Young University with a basis for making differential predictions of academic success in commerce, elementary education, physical sciences, and social sciences. For commerce and elementary education the most efficient battery included

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[2] Ibid.

[3] Ibid.

[4] Jocis B. Stone, "Differential Prediction of Academic Success at Brigham Young University," Journal of Applied Psychology, 38:109-10, April, 1954.

the HSGPA, ACE Total, and Cooperative General Culture Test (CGCT) for Literature and General Science. The correlation for this battery was .733. The social science predictor battery included HSGPA, ACE Total, and CGCT General Science, with the correlation being .507. The best single predictor was the HSGPA. The reliability coefficients of the criterion measure (CGPA) clustered around .80 except for the social science curriculum which had a correlation of .66.

Anderson and Stegman[5] attempted to determine the validity of a battery of seven tests used in the prediction of achievement of students completing the first year of college work at Fort Hays State College. The seven tests used and the results were (1) ACE Psychological Examination for College Freshman--.499, (2) ACE Cooperative Biology Tests, Form P--.440, (3) Cooperative General Achievement Tests, I II (Mathematics)--.486, (4) Schrammel-Gray High School and College Reading Test--.511, (5) Barrett-Ryan English Test--.563, (6) a one hundred item test in Physical Science--.347, and (7) a forty item test in Modern Civilization--.450.

To develop norms of the 1938 edition of the ACE 71,084 students in 356 colleges were tested by Thurstone.[6] In the

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[5] Mary R. Anderson and Erwin J. Stegman, "Predictors of Freshman Achievement at Fort Hays Kansas State College," Educational and Psychological Measurement, 14:722-3, 1954.

[6] L. L. Thurstone, Thelma G. Thurstone, and Dorthy Adkins, "The 1938 Psychological Examination," Educational Record, 20:283-300, April, 1939.

report of the normative study on the ACE Thurstone presented the results of the correlation studies in a variety of colleges between the students' GPA and their scores on the ACE. The coefficient of correlation was found to range from .46 to .53 on these studies with an average correlation of .50.

At the University of Georgia, Osborne, Sanders, and Green administered the ACE and found the following:

> The differential predictive significance of L scores and Total scores are generally superior to the Q scores. Academic success of women is somewhat better predicted than that of men. Among both sexes fall quarter marks are more accurately and reliably predicted than are winter, spring, or yearly marks. Success in certain subject-matter areas was predicted with markedly greater accuracy than in other subjects. The higher correlations are found for the natural sciences and languages while the lowest correlations are found in art, military science, and physical education.[7]

Brown[8] conducted a study at the Long Beach Junior College in 1947. He showed that the correlation between the ACE scores and the GPA, for two semesters in all subjects, was .40. The L score predicted GPA in linguistic subjects with a degree of accuracy which compares favorably with other measuring instruments. As a predictor of general academic success in Long Beach College the value of the total

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[7]R. Travis Osborne, Sanders, and Greene, "Differential Prediction of College Marks by ACE Scores," Journal of Educational Research, 44:107-15, October, 1950.

[8]Hugh S. Brown, "Differential Prediction by the ACE," Journal of Educational Research, 44:116-21, October, 1950.

score is limited. It was found that the total score is a better predictor of grades in the quantitative subjects than the Q score by itself. Brown concluded that students with high ACE scores tend to make better grades and students with low ACE scores tend to make poor grades. Brown also found that in predicting quantitative GPA there is no significant difference between predictions made using all the parts and those using the Arithmetic Reasoning alone. Same Opposites, a subtest of the linguistic section of the ACE, serves as well for predicting linguistic GPA as do all the parts. For the total GPA no significant difference is found between predictions made using all of the parts and predictions made using Arithmetic Reasoning and Same Opposites.

A study was conducted by Jackson[9] at Michigan State College for the freshman during the fall semester of 1952. It was discovered that the Michigan State College Reading Test when correlated with first semester grades gave a coefficient of .50. When the ACE was correlated with first semester grades the coefficient was .43, while the other tests included in the freshman test battery produced coefficients of correlation ranging between .43 and .50. Jackson also discovered that women obtained significantly

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[9]Robert A. Jackson, "Prediction of Academic Success of College Freshman," Journal of Educational Psychology, 46:296-301, March, 1955.

higher grades than men, the Reading Test was the best predictor of academic success, women tend to perform more nearly in accord with their measured ability than do the men, and practically all of the individuals in the high-ability group obtain at least a C average, and about fifty per cent of those in the low-ability group fail to obtain a C average.

Sopchak[10] investigated the relationship between quality-points (same as grade-point averages) achieved in the first year of college and scores on tests administered just before entering college for 356 students at Adelphi College. He found that the high school average had a higher correlation with quality-points than any psychological test. The California Reading and Language Tests and the ACE test had a higher correlation with quality-points achieved than the Rorschach. The correlation of quality-points and test scores are as follows: (1) high school average--.64, (2) California Reading Test--.49, (3) California Language Test--.40, (4) ACE Total Scores--.39, (5) ACE L Scores--.39, (6) ACE Q Scores--.23, and (7) Rorschach Total Scores--.20.

Klugh and Bendig[11] administered the ACE, Manifest

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[10] Andrew L. Sopchak, "Prediction of College Performance by Commonly Used Tests," Journal of Clinical Psychology, 14:194-7, April, 1958.

[11] Henry Klugh and A. W. Bendig, "The Manifest Anxiety and ACE Scales and College Achievement," Journal of Consulting Psychology, 19:487, December, 1955.

Anxiety Scale (MAS), and Gough's Hr Scale to all students enrolled in the introductory course of psychology at the University of Pittsburgh during the Fall Semester of 1954-1955. For 184 men and women students, data were available on four variables: the ACE, MAS, Hr Scales, and the students' quality-point averages (QPA). The coefficients of each test with the QPA criterion were: ACE--.62, Hr Scale--.32, and MAS--.01. Comparison of the single order and multiple correlations indicated that (a) a combination of the ACE and Hr Scales is a better predictor of QPA than the ACE alone, (b) adding the MAS to either the ACE or Hr Scales did not significantly increase the predictability of QPA, and (c) adding the MAS to the ACE-Hr Scale combination did significantly increase the multiple correlation with the QPA.

Another study made by Bendig and Klugh[12] at the University of Pittsburgh included 423 students who were undergraduate students enrolled in two semesters (Fall, 1954-1955, and Spring, 1954-1955) to predict academic achievement. The four variables of the study were as follows: (1) self-reported QPA, (2) high school graduating rank, (3) scores on Gough's Hr Scale (Hr), and (4) scores on Taylor's Manifest Anxiety Scale (MAS) The results indicated that Gough's Hr

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[12] A. W. Bendig and H. E. Klugh, "A Validation of Gough's Hr Scale in Predicting Academic Achievement," Educational and Psychological Measurement, 16:516-23, 1956

Scale correlated with QPA with a .33 correlation. The Hr Scale and the high school graduating rank are positively correlated with QPA, but they appear to measure slightly different aspects of academic achievement. The multiple correlation of both variables with the QPA was .45.

The MAS appeared relatively useless as a predictor of QPA, either alone or in combination with the other variables.

Chahbazi[13] reported that he was to find the relative validity of several aptitude and achievement tests and secondary school averages, Chahbazi developed a multiple-regression equation for predicting first term grades for the 1951, 1952, and 1953 freshman classes in the College of Agriculture at Cornell University. The subjects were 813 students that comprised 94 per cent of the entire freshman classes in 1951, 1952, and 1953. Six per cent were eliminated because their scores on one or more of the four tests or their secondary school averages or their first term college averages were not available. From these data the multiple-regression equation was developed for predicting first term grades. The multiple coefficient of correlation (R) for this equation was found to be .536. The coefficient of multiple determination was .287 which showed that he had accounted for 28.7 per cent

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[13] Parviz Chahbazi, "The Prediction of Achievement in a College of Agriculture," Educational and Psychological Measurement, 15:484-6, 1955.

of the variance of freshman averages.

In September, 1946, the following tests were administered to 233 entering freshmen at George Peabody College for Teachers: (1) Cooperative Reading Comprehension, Higher Level, Form S; (2) Cooperative General Achievement Test, Form P, Part I: A Survey Test in Social Studies, Part II: A Survey Test in the Natural Sciences; (3) Cooperative Test on Recent Social and Scientific Developments, Form 1946; and (4) Minnesota Personality Scale. The resulting coefficients of the data ranged from .01 to .44. The highest positive correlations shown by any of the test scores with QPA are those pertaining to the quantitative (Q) and total scores derived from the ACE (.44 and .43). The resulting coefficient of high school grades and QPA was .63 which is higher than the correlation of any test score with the QPA. It is obvious that a simple average of high school grades is a reasonably satisfactory variable for use in predicting freshman grades in Peabody College and is by far the best currently available.[14]

Bolton[15] reported that the ACE Psychological Examination

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[14]Samuel Cochran and Fredrick Davis, "Predicting Freshman Grades at Peabody College for Teachers," Peabody Journal of Education, 27:352-6, May, 1950.

[15]Muri Bolton, "Predictive Value for Academic Achievement of the ACE Psychological Scores," Peabody Journal of Education, 29:345-59, May, 1952.

scores will have more value for guidance if all three scores were used in analyzing the mental abilities of the students. The L score predicted achievement in general academic work better than the Q score and the Total score predicted better than either of the part scores. The ACE scores made by freshmen when they enter college had very little general predictive value for the quality of work they did as juniors or seniors.

A comparison for the 1949-1950 freshman group of the correlations between the ACE scores and the Otis I.Q. scores and QPA indicated that the ACE scores predicted achievement better than the Otis I. Q. scores.[16]

Frederiksen and Schrader[17] summarize a study of the college adjustment of veteran and non-veteran students made by the Educational Testing Service. The design of this study involved the calculation of validity coefficients for high school standing and the ACE Psychological Examination (ACPE) for freshman students in sixteen colleges and universities. It was found that the median correlation of the ACPE with the first year college grades was .47; the median correlation of high school standing with the same criterion was

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[16] Ibid.

[17] Norman Fredericksen and W. B. Schrader, "The ACE Psychological Examination and High School Standing as Predictors of College Success," Journal of Applied Psychology, 36:261-5, August, 1952.

.57. The validity of the ACPE tended to be slightly greater for male veterans than male non-veterans. The median validity coefficients for the ACPE, based on veteran and non-veteran students, were .49 and .45 respectively. The comparable median validity coefficients for high school standing were .53 and .60. A useful prediction of freshman average grade can be determined by the use of a weighted composite of ACPE total score and high school standing; the median multiple correlation coefficient for veteran students was found to be .60 and for non-veterans .68.

Kennedy[18] selected five groups of Valley Campus students for computing correlations between SCAT scores and GPA for the Fall semester of 1956. Two of these were designated "total group" and included juniors, seniors, and graduate students representing all majors. Students who had Fall semester SCAT records and who completed ten or more units were used in one group. The other group consisted of all students with test records who completed fourteen or more units, full-time students. The number of cases in these two samples were 151 and 81.

Three other samples were of students with majors in various divisions. These samples, composed of students who

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[18] Phyllis E. Kennedy, "The Validity of the School and College Ability Test for Prediction of College Achievement," California Journal of Educational Research, 19:67-71, March, 1956.

completed eight or more units, were as follows: business majors (N--29), elementary education majors (N--30), and social science majors (N--27).

All correlations obtained in this study between GPA and Verbal and Total scores for all samples were significant well beyond the one per cent level of confidence. The correlations between GPA and SCAT Quantitative scores were much lower but were significant at the one per cent level except for the group of elementary education majors (significant at five per cent level), and for the group of social science majors (not significant).

The correlation or validity coefficients obtained from the "total group" of students who completed fourteen or more units were as follows: .64 for the Verbal part (standard error, .07); denoting a level of significance well beyond the one per cent level, and .63 (standard error, .07) for the Total score indicated substantial relationships and may be used for the purposes of general group prediction in counseling. The Quantitative part score correlation was not sufficiently high to have practical value for the prediction of grades in terms of the total combined group of students at the campus. The Quantitative score does predict GPA in the group of business majors.

Coefficients for the "total group" students who completed ten or more units were somewhat lower than those

for full-time students. The correlations were still substantial. The Verbal score with grades was .55; Quantitative score with grades was .36; and Total score with grades was .52. The Verbal score again appears to predict achievement for students of Valley Campus more successfully than the Total score.

The correlations between GPA and test scores in the sample of business majors was .63 for Verbal, .74 for Quantitative, and .79 for Total score. Both verbal and mathematics skills contributed to the achievement of business majors.

Correlations between ability and GPA of elementary education majors were .58 for Verbal, .26 for Quantitative, and .64 for Total.

## SUMMARY

The consensus of the writers is that the correlations determined from test scores and GPA were not sufficiently high to warrant the utilization of test ratings as the only basis for predictions of individual success. The correlations ranged from .20 on the Rorschach Total Scores to .733 on a battery of tests including HSGPA, ACE Total, and Cooperative General Culture Test for Literature and General Science. It was felt that the correlations were not significant enough to be used as the only predictor of college success.

# CHAPTER III

## EXPERIMENTAL DESIGN

The coefficient of correlation between the School College Ability Test scores and the grade-point averages is presented in this chapter.

The 264 freshmen were composed of 160 women and 104 men at the College of Pacific. These students had taken the SCAT in the fall of 1956-1957 and had completed their freshman year and had their GPA's recorded.

The Total "T" score of the SCAT and the GPA of the 264 freshmen were used to determine the coefficient of correlation; the data were used to calculate the regression equation. The regression equation was used in an attempt to predict the GPA of the 1957-1958 freshmen at the College of the Pacific from their Total "T" score on the SCAT. Two-thirds of the predicted GPA will fall between the standard error of estimate of the regression equation.

Analysis of School and College Ability Test Scores. In Table I are given the ranges, means, and standard deviations of the SCAT scores of the 264 freshmen for 1956-1957. The range for the men was 22 to 75 for the total score, 12 to 75 for the verbal score, and 29 to 75 for the quantitative score. The range for the women was 33 to 72 for the total

TABLE I

RANGES, MEANS, AND STANDARD DEVIATIONS FOR SCAT SCORES OF 264 FRESHMEN (1956-1957) AT THE COLLEGE OF THE PACIFIC

| Indices | N | Ranges | Mean | SD |
|---|---|---|---|---|
| 1. Sex | | | | |
| Men | | | | |
| Total | 104 | 22-75 | 50 | 10 |
| Verbal | 104 | 13-75 | 50 | 10 |
| Quantitative | 104 | 29-75 | 50 | 10 |
| Women | | | | |
| Total | 160 | 23-73 | 50 | 10 |
| Verbal | 160 | 28-80 | 50 | 10 |
| Quantitative | 160 | 20-70 | 50 | 10 |

score, 28 to 80 for the verbal score, and 30 to 70 for the quantitative score.

The raw scores made on the SCAT were converted to "T" scores, with the mean at 50 and the standard deviation at 10.

Analysis of Grade-Point Averages. Ranges, means, and standard deviations were calculated for the 264 freshmen at the College of the Pacific during the 1956-1957 school year as grouped in various categories. These data can be found in Table II. It was noted that the range for the men was 1.19 to 4.00, with the mean being 2.44 and the standard deviation .50. The range for the women was .67 to 3.95, with the mean being 2.54 and the standard deviation .64.

TABLE II

RANGES, MEANS, AND STANDARD DEVIATIONS FOR GRADE-POINT AVERAGES OF 264 FRESHMEN (1956-1957) AT THE COLLEGE OF THE PACIFIC

| Indices | N | Ranges | Mean | SD |
|---|---|---|---|---|
| 1. Sex | | | | |
| Men | 104 | 1.10-4.00 | 2.44 | .50 |
| Women | 160 | .67-3.95 | 2.54 | .64 |

Analysis of the Coefficient of Correlation between SCAT Scores and GPA. By observing Table III it will be noted that there is a degree of variation between the correlations of male and female freshmen on the total, verbal, and quantitative parts of the SCAT. The correlation coefficient for SCAT total scores and GPA for men was .52, for women was .35. The correlation for SCAT verbal scores and GPA for men was .46, and women .39. The coefficient of correlation for SCAT quantitative scores and GPA for men was .44, and women was .34.

TABLE III

CORRELATION COEFFICIENT OF SCAT SCORES AND GPA FOR 264 FRESHMEN (1956-1957) AT THE COLLEGE OF THE PACIFIC

| Predictor | Correlation Coefficient |
|---|---|
| SCAT TOTAL SCORES | |
| Men | .52 |
| Women | .35 |
| SCAT VERBAL SCORES | |
| Men | .46 |
| Women | .39 |
| SCAT QUANTITATIVE SCORES | |
| Men | .44 |
| Women | .34 |

## SUMMARY

The range for men SCAT Total "T" scores was 22-75 and the range for women SCAT Total "T" scores was 23-72.

The GPA range for men was 1.10-4.00 as compared to .67-3.95 for the women. The mean of the GPA for the men was 2.44 as compared to 2.54 for the women. The standard deviation of the GPA for the men was .50 as compared to .64 for the women.

It was calculated that the coefficient of correlation between SCAT Total "T" scores and GPA for men was .52 as compared to .35 for the women.

# CHAPTER IV

## LINEARITY, REGRESSION EQUATION, AND STANDARD ERROR OF ESTIMATE OF THE REGRESSION EQUATION

This chapter will present a discussion of the importance of linearity of correlation. A test for linearity will be made on the data used to determine if correlation is linear. This test for linearity may be computed coefficient or it may be visual. In this discussion, only a visual test was applied. The regression equation and the standard error of estimate of the regression equation was determined.

Test for linearity. The visual plotting of data in Figure 1 shows that the women's SCAT scores and GPA tend to show that the "best-fit" curve that is possible is a straight line. All of the points do not fall on a straight line, but they will be clustered about it in such a manner as to clearly indicate linearity.

Figure 2 depicts the plotting of the men's SCAT scores and GPA. The curve that fits this data is a straight line. It is shown that all of the points are not in a straight line, but the data is grouped about it in such a way as to show linearity.

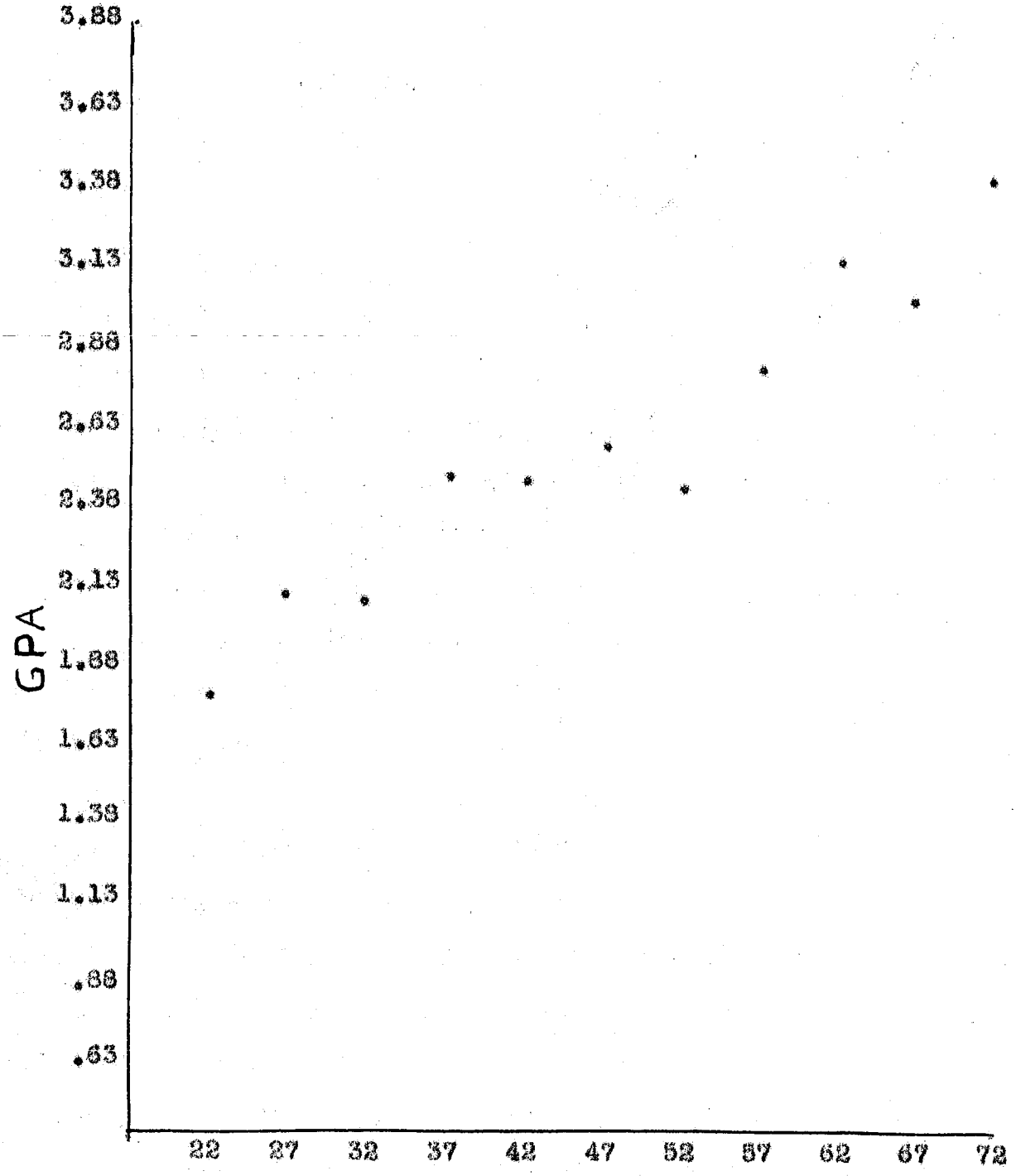


FIGURE 1

LINEARITY OF WOMEN'S GPA ON THE SCAT SCORES
FOR 1956-1957 FRESHMEN AT C.O.P.

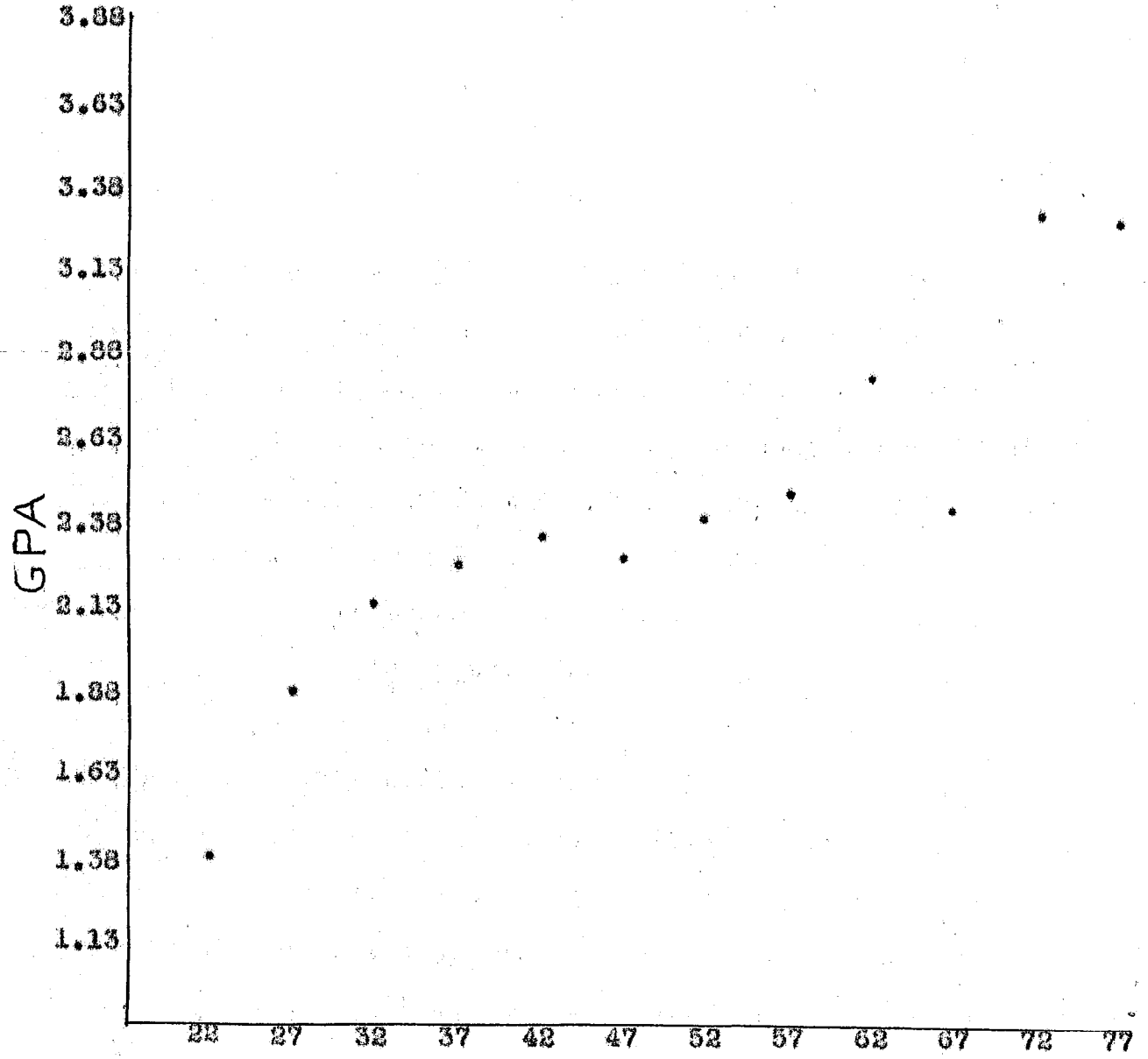


FIGURE 2

LINEARITY OF MEN'S GPA ON THE SCAT SCORES
FOR 1956-1957 FRESHMEN AT C.O.P.

Regression equation. Figure 1 showed that the best curve to the data for the women was a straight line. The regression equation will be the equation of a line which will represent the trend of the set of data. The regression equation that is desired for the data is one formed by the GPA on the SCAT scores. The regression equation of the line formed is the following formula: $Y = .022X + 1.44$.

The best-fit curve to the data for the men was shown to be a straight line in Figure 2. The equation will be of the one of the data depicted by the GPA on the SCAT scores. The formula, $Y = .026 + 1.14$ was formed by the GPA on the SCAT scores.

Standard error of estimate of the regression equation. The standard error of estimate of the women's regression equation was calculated and was found to be .60, and the calculations for the men's standard error of estimate was determined to be .43.

## SUMMARY

The data were plotted and determined to be linear. Regression equations for women and men were calculated; they are as follows:

Women $Y = .022 + 1.44$

Men $Y = .026 + 1.14$

The standard error of estimate of the regression

equations was determined to be .60 for the women and .43 for the men.

# CHAPTER V

## PREDICTING ACHIEVEMENT OF THE 1957-1958 COLLEGE OF THE PACIFIC FRESHMEN FROM THEIR SCAT SCORES

The correlation coefficient of SCAT Total "T" scores and GPA was calculated for the men and women of the 1956-1957 freshman class at the College of the Pacific. It was found that the data were linear, and regression equations were determined in order to attempt to predict the GPA of the 1957-1958 freshmen at the College of the Pacific. The standard error of estimate of the regression equations were calculated and the actual GPA of the students will fall within these limits two-thirds of the time.

Predicting GPA for men and women. SCAT Total "T" scores and GPA were collected from the undergraduate office for 93 men and 183 women of the 1957-1958 freshmen. With respective regression equations the GPA of the men and women were predicted. The results for men are as follows:

| Men | Predicted GPA | Below Predicted GPA | Above Predicted GPA |
|---|---|---|---|
| 93 | 52 | 31 | 10 |

The actual GPA of 52 men fell within the limits of the regression equation; this did not predict two-thirds of the

GPA for the men. The prediction of the GPA from the SCAT scores when compared with the actual GPA of the 93 men showed that the actual GPA of 31 men fell below the predicted GPA and outside the limits of the regression equation. The equation was used to point out that the actual GPA of 10 men were above the predicted GPA and lay above the standard error of estimate of the regression equation.

The GPA predicted by the regression equation for the women were shown to be as follows:

| Women | Predicted GPA | Below Predicted GPA | Above Predicted GPA |
|---|---|---|---|
| 193 | 143 | 16 | 25 |

The results point out that the actual GPA of 143 women when compared with the predicted GPA fell within the standard error of limits of the equation; more than two-thirds of the 1957-1958 freshman women's actual GPA fell within the limits of the regression equation. The calculations pointed out that the actual GPA of 16 women fell below the predicted GPA and beneath the limits of the equation. It was determined that the actual GPA of 25 women were above the predicted GPA and were above the standard error of estimate.

Predicting GPA of students in different majors. To determine the achievement of students in their respective majors the students were classified by their choice of major. If five or more students chose a major they were grouped

accordingly, but if four or less chose a major they were grouped as "All Other" majors.

Table IV shows that the men in Business Administration and the "All Others" group had more than two-thirds of the majors having GPA that fell within the limits of the regression equation. Science, Pharmacy, Physical Education, Engineering, and History majors did not have two-thirds of the group falling within the standard error of estimate of the equation.

Table V points out that the only major not having the actual GPA fall within the limits two-thirds of the time for the women was Speech. The other majors had more than two-thirds of the GPA predicted by the regression equation when compared with the actual GPA.

## SUMMARY

It was found that more than two-thirds of the women of the 1957-1958 freshman class at the College of the Pacific had predicted GPA falling within the standard error of estimate of the regression equation two-thirds of the time when compared with the actual GPA. More than two-thirds of the women comprising the different majors had predicted GPA falling within the limits when checked against the actual GPA except those majoring in Speech.

TABLE IV

PREDICTING MEN'S GRADE-POINTS IN DIFFERENT MAJORS AT THE COLLEGE OF THE PACIFIC
1957-1958

| Major | N | Predicted GPA | Below Predicted GPA | Above Predicted GPA |
|---|---|---|---|---|
| Science | 17 | 8 | 7 | 2 |
| Pharmacy | 14 | 6 | 7 | 1 |
| Business Administration | 14 | 11 | 2 | 1 |
| Physical Education | 9 | 4 | 4 | 1 |
| Engineering | 8 | 3 | 3 | 2 |
| History | 7 | 3 | 2 | 2 |
| All Others | 34 | 17 | 6 | 1 |

TABLE V

PREDICTING WOMEN'S GRADE-POINTS IN DIFFERENT MAJORS AT THE COLLEGE OF THE PACIFIC 1957-1958

| Major | N | Predicted GPA | Below Predicted GPA | Above Predicted GPA |
|---|---|---|---|---|
| Education | 53 | 43 | 5 | 5 |
| Music | 33 | 17 | 1 | 5 |
| Art | 13 | 13 | 0 | 0 |
| Speech | 12 | 7 | 2 | 3 |
| Physical Education | 9 | 8 | 0 | 1 |
| History | 9 | 7 | 1 | 2 |
| Home Economics | 8 | 6 | 1 | 1 |
| Science | 8 | 6 | 2 | 0 |
| English | 7 | 5 | 1 | 1 |
| Sociology | 5 | 4 | 1 | 0 |
| Liberal Arts | 5 | 4 | 0 | 1 |
| All Others | 31 | 22 | 3 | 6 |

The men of the 1957-1958 freshman class at the College of the Pacific did not have two-thirds of the GPA predicted by the regression equation to fall within the limits of the equation. The men majoring in Business Administration and those listed in "All Other" majors did have two-thirds of the GPA predicted within the standard error of estimate of the equation.

# CHAPTER VI

## SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

The purpose of this study was to attempt to predict the grade-point averages of the 1957-1958 freshmen at the College of the Pacific from their School College Ability Test Total "T" scores; two-thirds of the predicted GPA will fall between the standard error of estimate of the regression equation.

### SUMMARY

The data were collected and the correlation coefficient between the GPA and the SCAT Total "T" scores was found to be .52 for the men and .55 for the women.

The GPA and the SCAT scores were plotted and found to be linear with the statistical equation for the men and the women as follows:

Men $Y = .026 + 1.14$

Women $Y = .032 + 1.44$

It was found that the standard error of estimate of the regression equation was .43 for the men and .60 for the women.

More than two-thirds of the actual GPA's for the 1957-1958 freshman women at the College of the Pacific were pre-

dicted and fell between the limits of the regression equation. The actual GPA's for the 1957-1958 freshman men did not have two-thirds falling between the limits of the regression equation.

The predicting of GPA for the different majors revealed that the actual GPA of the women in all of the majors except Speech had two-thirds falling within the standard error of estimate of the regression equation. The actual GPA of the men fell within the limits of the equation in Business Administration and "All Other" majors only.

## CONCLUSIONS

The correlations of the SCAT scores and GPA are not significant enough to be used as the only basis for predicting individual scholastic success for freshmen at the College of the Pacific. The .52 correlation for men will only make it possible to improve the predictions of GPA by 27 per cent above chance, and this is not sufficient to warrant use as a predictor of scholastic success. The .35 coefficient of correlation for the women will only improve the prediction of scholastic success by 12 per cent above chance. This is not a high enough correlation to be used as a predictor.

The SCAT test is a new aptitude test, and it had not

been used at the College of the Pacific before 1956-1957. The school was using the SCAT test in place of the ACE and it was desired to attempt to show that it was a better predictor of scholastic ability. SCAT measures the linguistic and quantitative ability of the students and it was hoped that the test would have a higher correlation so as to help in the counseling of the students. Research has shown that it does not have a significant correlation to use it as a predictor of college success.

The women majoring in Speech were the only group of majors that did not have two-thirds of the actual GPA falling within the limits of the equation. Speech majors are comprised of a diverse group of students such as public address, forensic, radio, speech correction, and drama students. Because of the many areas included in the Speech Department this could have caused this one major to fall out of the limits. Public address (oral composition) is a normal academic subject and is related closely to the verbal content of the SCAT test. Radio is similar to public address and can be determined from the linguistic part of the SCAT. Speech correction is in the science field and can be related with the ability measured by the SCAT test. The students taking drama could be the ones in the Speech Department who caused this to happen. The students attempt to be theatrical instead of achieving scholastic ability, and this could have

caused the Speech Majors to show up as they did in the results. Another aspect could be that speech is one field in which appearance is significant in grading and this could play an important part upon the grades received by the students causing the group to fall out of the limits of the equation.

## RECOMMENDATIONS

Since the correlations of this study were not significant to be used in predicting college success it is recommended that the following items be considered in the future:

1. Conduct a study using the 1956-1957 freshman SCAT scores and correlate them with the GPA's as sophomores and juniors.

2. Conduct a study using another freshman class' SCAT scores and GPA to determine the coefficient of correlation and the regression equation.

3. Correlate the GPA with the SCAT scores and scores made on a reading test for a group at the College of the Pacific to predict scholastic achievement.

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